

SHADOW TUBES

Use objects and materials you have around your home to investigate shadows.

Overview



Discover how to create shadows using a toilet roll tube, a torch, some cling film and paper, stickers or foil.

This 15 minute activity includes a story for younger children and investigations for older children.

 [Printable version](#)

This page will print, but looks a little funky. Click the button for a PDF version which looks a bit better. This is a stop-gap while we work on a better solution!

What you'll need

- A blank wall, door or cupboard to create your shadow on
- Toilet or kitchen roll tube, or rolled up dark coloured paper or card
- A torch – there will probably be one on your phone
- Cling film, a clear plastic bag or clear plastic food wrapping
- Paper, foil or foam shapes, pipe cleaners, buttons, stickers or anything else you can stick to the clingfilm to block the light
- Glue, sticky tack or rolled up sticky tape

Duration

15 minutes or so

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Suitable for...

Age 3 and up.

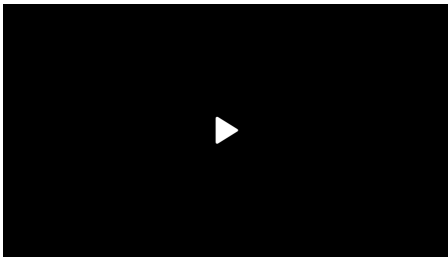
Safety notes

You know your children better than anyone, and you should judge whether they're ready for this activity. You might want to think in particular about:

- Supervision: the activity involves small parts, so there's a choke hazard.
- Glue can damage carpets.

What to do

Step 1



The Black Rabbit by Phillipa Leathers is a story all about a Rabbit and its shadow.

It's written for younger children, so if you have older children you may want to skip straight to Step 2!

The Black Rabbit is a great way to start talking about shadows. After you have listened, you could ask:

What is the black rabbit?

Why does the black rabbit follow Rabbit?

Why can't we see the black rabbit in the woods?

Why does the black rabbit scare the wolf?

How does the black rabbit become bigger and smaller?

Why is the black rabbit sometimes in front and sometimes behind Rabbit?

Step 2



Cut a square of clingfilm big enough to cover one end of the toilet roll tube.

Pull the clingfilm tightly across the top of

- Glue, sticky tack or sticky tape

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Careers Link: Lighting Technician

Lighting Technicians are also known as Lighting Operators or Lighting Electricians and they usually specialise in film and TV, or theatre, concerts and live events. Their work can range from basic spotlighting to operating strobes, lasers and pyrotechnics. They may be the only lighting technician on a theatre production, or part of a large crew on



the tube and secure it by wrapping it around the sides of the tube.

If you are using a plastic bag or wrapping, you'll need to secure it using an elastic band or sticky tape.

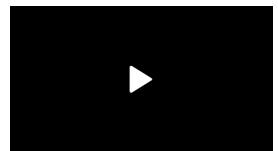
a concert tour or feature film. Duties can include setting up the lighting equipment before a shoot starts, carrying out lighting tests, programming and operating manual and computer-controlled lighting systems, or taking down the equipment after shows or filming.

Attributes: patient, tenacious, collaborative

Dancing shadows

You might enjoy this music video called Shadows by Lindsay Stirling.

Watch what happens to her shadow during the song. How do you think she does this?



Step 3



Step 3

Cut out some small shapes from your paper, foil or other material.

Then stick the shapes onto the clingfilm using a little bit of glue, sticky tack or sticky tape.

If you don't have any glue, you can put the shapes onto the clingfilm and then add another layer of clingfilm over the top to hold them in place.

Step 4



Point your tube at a wall or door and shine a torch through the open end of your tube. You should see shadows made by the shapes on the end of the tube.

You could make a second shadow tube with different shapes.

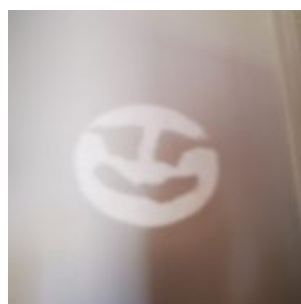
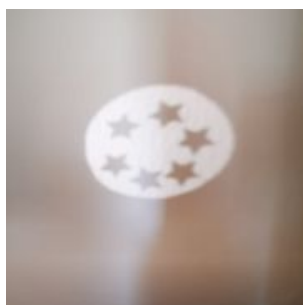
Things to discuss

How did you make the shadows?

The light coming from your torch travels in straight lines until it reaches your wall. In your shadow tube, the light was blocked by the shapes you stuck on the end. Light could still pass around the edges of the shape through the clingfilm. This light travelled towards your wall and formed a shadow. Watch this [BBC video](#) to find out more.

You could investigate:

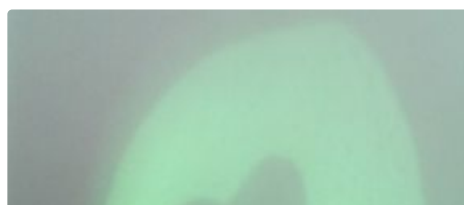
- What happens if you move your torch and shadow tube closer to the wall?
- What happens if you move your torch and shadow tube further away from the wall?
- What happens if you move your torch further away from your shadow tube?

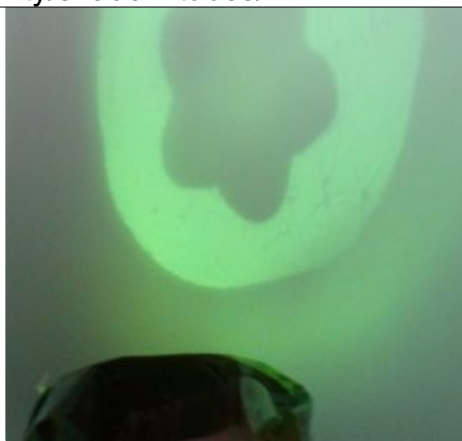


Other things to try

Coloured light

Instead of using clingfilm you could use coloured cellophane (like you find on some chocolates) on your shadow tubes.

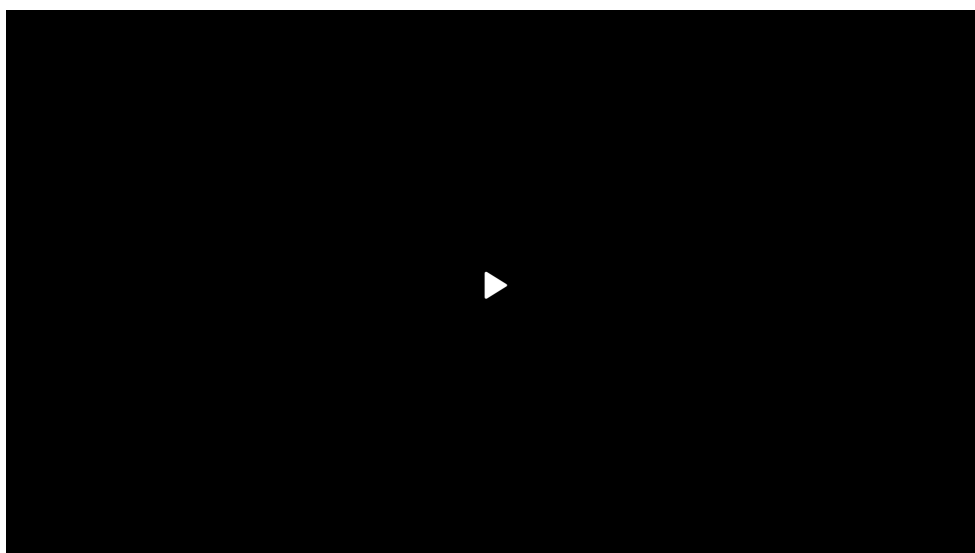




Hand shadows

Have a go at making animal shadows using your hands!

This video is really easy to follow, all you need is a light source such as a torch, lamp or even the sun, your two hands and a wall to create your shadow on.



Shadow puppet theatres

Shadow puppets are a great way to tell stories. Watch this video about [The Hungry Monster](#) and then try making your own.

The easiest way to tell stories using shadow puppets is to project them onto your wall, like you did with the shadow tubes.

You could also make a shadow puppet theatre; [this video from Cbeebies](#) shows you how to make a simple shadow puppet theatre.

Don't worry if you don't have all the equipment, you could use cereal or other empty boxes. Just cut out the shape that you need and stick it onto a long stick such as straw, pen, pencil, kebab skewer or even a spoon.

